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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,449

02/25/2004

Hisamatsu Nakano

04108 /LH

5643

1933

7590

04/27/2005

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EXAMINER

CAO, HUEDUNG X

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/787,449

Applicant(s)

NAKANO ET AL.

Examiner

Huedung X. Cao

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 5-8 is/are rejected.
- 7) ☐ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 02/25/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Specification, pages 1-3, and figures 1-3, 4A-4B) in view of Taira et al. (US 6,731,243 B2).

As per claim 1, Prior Art teaches the claimed "an antenna" apparatus, comprising:

a dielectric substrate made of a dielectric material (Prior Art, figure 4A, dielectric substrate 32);

a flat-plate radiation element buried inside the dielectric substrate at its center portion (Prior Art, figure 4A, radiation element 31);

a feeding lead connected to the radiation element and extracted outward from a rear surface of the dielectric substrate through the inside thereof (Prior Art, figure 4A, feed lead 33);

a conductor cover covering at least side surfaces of the dielectric substrate (Prior art, conductor 34);

It is noted that Prior Art does not explicitly teach the conductor cover having a side wall portion extending in a thickness direction of the radiation element and covering all of the side surfaces of the dielectric substrate, and at least one hood portion extending from an upper edge of the side wall portion and covering a part of a front surface of the dielectric substrate. However, Taira et al. Teach such conductor cover is widely used in the art (Taira, figure 4, cavity element 35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Prior Art's conductor cover, as taught by Taira in order to obtain high electromagnetic field radiation characteristic and maintaining sufficiently high antenna device gain.

Claim 2 adds into claim 1, wherein the dielectric substrate has a shape of a rectangularly configured body (Prior Art, figure 4A, dielectric substrate 32).

Claim 5 adds into claim 1, wherein the radiation element has a rectangular shape (Prior Art, figure 4A, radiation element 31).

Claim 6 adds into claim 5, wherein the radiation element has a six-sided shape obtained by trimming the rectangular shape by cutting off two corners opposite to each other along a diagonal line (Prior Art, figure 4A, radiation element 31 with square shape cutting off two conners).

Claim 7 adds into claim 5, wherein the rectangular shape is a square shape (Prior Art, figure 4A, radiation element 31 with square shape).

Claim 8 adds into claim 1, wherein the dielectric substrate, the radiation element, the feeding lead, and the conductor cover are formed into an integral structure (Prior art, figure 4A).

***Allowable Subject Matter***

3. Claims 3, and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

Prior Art fail to explicitly teach "the hood portion having a trapezoidal shape whose base is coincident with a peripheral side of the front surface of the dielectric substrate, the front surface of the dielectric substrate having an exposed portion which is not covered with the hood portion, the exposed portion having a rectangular center portion and a plurality of strip-like peripheral portions extending outward from a plurality of corners of the rectangular center portion along diagonal lines; the exposed portion having a rectangular center portion and a plurality of rectangular peripheral portions having inner corners which overlap four corners of the rectangular center portion, respectively.

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***Inquiries***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Huedung Cao  
Patent Examiner